CLAIMS

1. A method of recording information using a laser on a multilayer optical disk having a plurality of recording layers, the plurality of recording layers including a first recording layer and a second recording layer, the second recording layer being a recording layer adjacent the first recording layer, the first recording layer having a first test writing area to be used for calibration of write power and the second recording layer having a second test writing area to be used for calibration of write power, wherein a first region of the first test writing area is superposed with a second region of the second test writing area when considered in the direction in which the laser is arranged to irradiate, the method comprising:

if the second region of the second test writing area is unrecorded, recording data in the second region of the second test writing area, thereby converting the second region of the second test writing area into a recorded state;

once the second region of the second test writing area has been converted into a recorded state, performing test writing in the first region of the first test writing area.

2. A method according to Claim 1, wherein the second recording layer is the next recording layer with

respect to the first recording layer in the direction in which the laser is arranged to irradiate.

3. A method according to Claim 2, wherein the optical disk includes a third recording layer, the third recording layer being the next recording layer with respect to the first recording layer in the opposite direction to that in which the laser is arranged to irradiate, the third recording layer having a third test writing area to be used for calibration of write power, wherein a third region of the third test writing area is superposed with the first region of the first test writing area when considered in the direction in which the laser is arranged to irradiate, the method comprising:

if the third region of the third test writing area is unrecorded, recording data in the third region of the third test writing area, thereby converting the third region of the third test writing area into a recorded state;

once the third region of the third test writing area has been converted into a recorded state, performing said test writing in the first region of the first test writing area.

4. A method according to any one of Claims 1 to 3, wherein before performing the test writing in the first region of the first test writing area, if the first region of the

first test writing area is unrecorded, the method comprises: recording data in the first region of the first test writing area, thereby converting the first region of the first test writing area into a recorded state; and then clearing the first region of the first test writing area.

5. A method according to any one of Claims 1 to 3, wherein, before performing the test writing in the first region of the first test writing area, the method comprises clearing the first region of the first test writing area.

6. A method according to Claim 4 or Claim 5, wherein the clearing of the first region of the first test writing area comprises performing an erasure operation to make the first region unrecorded.

7. A method according to any one of Claims 1 to 4, wherein for the first region of the first test writing area, or the second region of the second test writing area, or the third region of the third test writing area, the respective step of recording data in the region thereby converting the region into a recorded state comprises performing an operation to make the region logically zero.

8. Apparatus arranged to record information to a

multilayer optical disk having a plurality of recording layers using a laser, the plurality of recording layers including a first recording layer and a second recording layer, the second recording layer being a recording layer adjacent the first recording layer, the first recording layer having a first test writing area to be used for calibration of write power and the second recording layer having a second test writing area to be used for calibration of write power, wherein a first region of the first test writing area is superposed with a second region of the second test writing area when considered in the direction in which the laser is arranged to irradiate, wherein

if the second region of the second test writing area is unrecorded, the apparatus is arranged to record data in the second region of the second test writing area, thereby converting the second region of the second test writing area into a recorded state;

once the second region of the second test writing area has been converted into a recorded state, the apparatus is arranged to perform test writing in the first region of the first test writing area.

9. Apparatus according to Claim 8, wherein the second recording layer is the next recording layer with respect to the first recording layer in the direction in which the laser is arranged to irradiate.

10. Apparatus according to Claim 9, wherein the optical disk includes a third recording layer, the third recording layer being the next recording layer with respect to the first recording layer in the opposite direction to that in which the laser is arranged to irradiate, the third recording layer having a third test writing area to be used for calibration of write power, wherein a third region of the third test writing area is superposed with the first region of the first test writing area when considered in the direction in which the laser is arranged to irradiate, wherein

if the third region of the third test writing area is unrecorded, the apparatus is arranged to record data in the third region of the third test writing area, thereby converting the third region of the third test writing area into a recorded state;

once the third region of the third test writing area has been converted into a recorded state, the apparatus is arranged to perform said test writing in the first region of the first test writing area.

11. Apparatus according to any one of Claims 8 to 10, wherein before performing the test writing in the first region of the first test writing area, if the first region of the first test writing area is unrecorded, the apparatus is

arranged to: record data in the first region of the first test writing area, thereby converting the first region of the first test writing area into a recorded state; and then to clear the first region of the first test writing area.

12. Apparatus according to any one of Claims 8 to 10, wherein, before performing the test writing in the first region of the first test writing area, the apparatus is arranged to clear the first region of the first test writing area.

13. Apparatus according to Claim 11 or Claim 12, wherein the clearing of the first region of the first test writing area comprises performing an erasure operation to make the first region unrecorded.

14. Apparatus according to any one of Claims 8 to 11, wherein for the first region of the first test writing area, or the second region of the second test writing area, or the third region of the third test writing area, the apparatus is arranged such that the respective recording of data in the region thereby converting the region into a recorded state comprises performing an operation to make the region logically zero.

15. A single-sided multilayer optical disk, comprising:

a plurality of information rewritable recording layers each having a spiral track or concentric tracks formed thereon,

wherein a test writing area to be used for calibration of write power is provided in each of the recording layers; and

the test writing areas of adjacent two of the recording layers are superposed at least partly on each other in a view from a direction of incidence of a light beam.

16. A single-sided multilayer optical disk according to claim 15, wherein the test writing area of each of the recording layers is provided in at least one of a center part and a peripheral part of the recording layer.

17. A single-sided multilayer optical disk according to claim 15, wherein information to be used for the calibration of the write power is recorded in at least one of the recording layers in a process of manufacturing the single-sided multilayer optical disk.

18. A single-sided multilayer optical disk according to claim 17, wherein:

the information to be used for the calibration of the write power includes a plurality of calibration information items each set independently for a corresponding one of the recording layers; and

each of the calibration information items is recorded in the corresponding one of the recording layers.

19. The single-sided multilayer optical disk according to claim 17, wherein the information to be used for the calibration of the write power includes information set recording rate by recording rate.

20. A single-sided multilayer optical disk according to claim 17, wherein the information to be used for the calibration of the write power is recorded by performing phase modulation on a wobble shape of the spiral track or the concentric tracks in accordance with the information to be used for the calibration of the write power.

21. A single-sided multilayer optical disk according to claim 15, wherein optimum write strategy information for recording information in the recording layers is recorded in at least one of the recording layers in a process of manufacturing the single-sided multilayer optical disk.

22. A single-sided multilayer optical disk according to claim 21, wherein:

the write strategy information includes a plurality of parameter information items each set independently for a corresponding one of the recording layers; and

each of the parameter information items is recorded in the corresponding one of the recording layers.

23. A single-sided multilayer optical disk according to claim 21, wherein the write strategy information includes information set recording rate by recording rate.

24. A single-sided multilayer optical disk according to claim 21, wherein the write strategy information is recorded by performing phase modulation on a wobble shape of the spiral track or the concentric tracks in accordance with the write strategy information.

25. A method of recording information on the single-sided multilayer optical disk as set forth in claim 15, the method comprising the step of:

before performing test writing in a first one of the test writing areas of the recording layers in the optical disk except the recording layer closest to a light beam entrance

surface, recording data in a second one of the test writing areas adjacent to the first one of the test writing areas on a light beam entrance surface side thereof, thereby converting the second one of the test writing areas into a recorded state.

26. A method of recording information on the single-sided multilayer optical disk as set forth in claim 15, the method comprising the step of:

before performing test writing in a first one of the test writing areas of the recording layers in the optical disk except the recording layer most remote from a light beam entrance surface, recording data in a second one of the test writing areas adjacent to the first one of the test writing areas on a side thereof opposite from the light beam entrance surface, thereby converting the second one of the test writing areas into a recorded state.

27. A computer-readable recording medium on which recorded is a program for causing a computer to execute a method of recording information on the single-sided multilayer optical disk as set forth in claim 15, the method comprising the step of:

before performing test writing in a first one of the test writing areas of the recording layers in the optical disk except the recording layer closest to a light beam entrance

surface, recording data in a second one of the test writing areas adjacent to the first one of the test writing areas on a light beam entrance surface side thereof, thereby converting the second one of the test writing areas into a recorded state.

28. A computer-readable recording medium on which recorded is a program for causing a computer to execute a method of recording information on the single-sided multilayer optical disk as set forth in claim 15, the method comprising the step of:

before performing test writing in a first one of the test writing areas of the recording layers in the optical disk except the recording layer most remote from a light beam entrance surface, recording data in a second one of the test writing areas adjacent to the first one of the test writing areas on a side thereof opposite from the light beam entrance surface, thereby converting the second one of the test writing areas into a recorded state.

29. An optical disk unit capable of recording information on the single-sided multilayer optical disk as set forth in claim 15, the optical disk unit comprising:

a memory;

an optical pickup unit configured to emit a light beam onto the optical disk;

a controlling computer; and

a processing unit,

wherein:

the memory stores a program for causing the controlling computer to execute a method of recording the information on the optical disk, the method comprising the step of, before performing test writing in a first one of the test writing areas of the recording layers in the optical disk except the recording layer closest to a light beam entrance surface, recording data in a second one of the test writing areas adjacent to the first one of the test writing areas on a light beam entrance surface side thereof, thereby converting the second one of the test writing areas into a recorded state;

the controlling computer obtains an optimum recording condition for the optical disk in accordance with the program stored in the memory; and

the processor unit records the information on the optical disk with the optimum recording condition through the optical pickup unit.

30. An optical disk unit capable of recording information on the single-sided multilayer optical disk as set forth in claim 15, the optical disk unit comprising:

a memory;

an optical pickup unit configured to emit a light beam onto the optical disk;

a controlling computer; and

a processing unit,

wherein:

the memory stores a program for causing the controlling computer to execute a method of recording the information on the optical disk, the method comprising the step of, before performing test writing in a first one of the test writing areas of the recording layers in the optical disk except the recording layer most remote from a light beam entrance surface, recording data in a second one of the test writing areas adjacent to the first one of the test writing areas on a side thereof opposite from the light beam entrance surface, thereby converting the second one of the test writing areas into a recorded state;

the controlling computer obtains an optimum recording condition for the optical disk in accordance with the program stored in the memory; and

the processor unit records the information on the optical disk with the optimum recording condition through the optical pickup unit.